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L4 ANSWER 1 OF 1 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1995:643215 CAPLUS

DN 123:137520

ED Entered STN: 28 Jun 1995

TI Type I Benzophenone-Mediated Nucleophilic Reaction of 5'-Amino-2',5'-  
dideoxyguanosine. A Model System for the Investigation of Photosensitized  
Formation of DNA-Protein Cross-Links

AU Morin, Benedicte; Cadet, Jean

CS Departement de Recherche Fondamentale sur la Matiere Condensee, SESAM/LAN,  
Grenoble, F-38054, Fr.

SO Chemical Research in Toxicology (1995), 8(5), 792-9

CODEN: CRTOEC; ISSN: 0893-228X

PB American Chemical Society

DT Journal

LA English

CC 8-2 (Radiation Biochemistry)

AB 5'-Amino-2',5'-dideoxyguanosine has been synthesized to investigate the  
intramol. reactivity of an amino group toward the guanine radical produced  
by type I photosensitization mechanism. Benzophenone-mediated  
photosensitization of 5'-amino-2',5'-dideoxyguanosine in aerated aqueous  
solution

results in the formation of a predominant cyclic nucleoside together with  
an unstable nucleoside precursor. The two modified nucleosides have been  
isolated by reverse phase high performance liquid chromatog. and  
characterized by spectroscopic measurements including <sup>13</sup>C and <sup>1</sup>H NMR, fast  
atom bombardment mass spectroscopy, and UV absorption. The stable  
photoproduct has been identified as 9-oxa-2,4-diazabicyclo[4.2.1]non-2-en-  
7-ol, 3-amino- (1R-exo), whereas its precursor has been assigned as acetic  
acid, [(7-hydroxy-9-oxa-2,4-diazabicyclo [4.2.1]non-2-en-3-yl)amino]oxo-  
(1R-exo). A reaction mechanism, involving nucleophilic addition of the sugar  
amino group to guanine radical intermediates, is proposed to explain the  
formation of the two photoproducts.